

MILITARY SPECIFICATION  
RESISTOR, FIXED, WIRE WOUND (POWER TYPE),  
STYLES RW80 and RW81

THIS SPECIFICATION IS INACTIVE FOR NEW DESIGN (SEE 6.4)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the associated requirements for styles RW80 and RW81 resistors.

1.2 Part or Identifying Number (PIN). Resistors covered by this specification are identified by a PIN, which consists of the style designation, characteristic, and coded resistive value. The PIN is derived in accordance with MIL-PRF-26 and is in the following form:

<u>RW80</u>	<u>U</u>	<u>49R9</u>	<u>F</u>
— —	— —	— —	— —
Style	Characteristic	Resistance	Resistance
(1.2.1.1)	(1.2.1.2)	(1.2.1.3)	tolerance
			(1.2.1.4)

1.2.1.1 Style. The style is identified by the two-letter symbol "RW" followed by a two-digit number.

1.2.1.2 Characteristic. The characteristic is identified by a single letter that identifies the maximum continuous operating temperature (surface hot spot), the minimum insulation resistance value at the end of the moisture resistance test, and the resistance temperature characteristic in accordance with table I.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center, Columbus, ATTN: DSCC-VAT, P.O. 3990, Columbus, Ohio, 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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1.2.1.3 Resistance. The nominal resistance expressed in ohms is identified by a four-digit number; the first three digits represent significant figures and the last digit specifies the number of zeroes to follow. When resistance values less than 100 ohms are required, the letter "R" is substituted for one of the significant digits to represent the decimal point. When the letter "R" is used, succeeding digits of the group represent significant figures as shown in the following example.

R100 = 0.1 ohm  
1R00 = 1.0 ohm  
10R0 = 10.0 ohm

Minimum and maximum resistance values are as specified herein. The standard values for every decade should follow the sequence demonstrated for the "10 to 100" decade in accordance with RS-385.

TABLE I. Characteristic.

Symbol	Maximum continuous operation temperature <sup>1/</sup>	Minimum insulation resistance at end of moisture resistance	Resistance temperature characteristic (ppm/°C)
U	275°C	100 Megohms	0 ±20 ≥20 ohms
			0 ±30 ≥10 ohms to <20 ohms
			0 ±50 ≥1 ohm to <10 ohms
			0 +400, -100 ≥0.499 ohm to <1 ohm
			0 +650, -100 ≥0.1 ohm to < 0.499 ohm

<sup>1/</sup> This temperature is also the maximum permissible hot-spot surface temperature.

1.2.1.3.1 Replacement or maintenance (applicable to .1 and .5 percent tolerances). It is preferred that resistance values be selected as specified in RS-385. However, if it is impracticable to do so, then any value (within specification limits) may be specified and these values shall be considered as conforming to the specification.

1.2.1.4 Resistance tolerance The resistance tolerance is identified by a single letter in accordance with table II.

TABLE II. Resistance tolerance.

Symbol	Resistance tolerance
	Percent (±)
B	0.1
D	.05
F	1.0

## 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document user are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

## 2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

### SPECIFICATION

#### DEPARTMENT OF DEFENSE

MIL-PRF-26 - Resistors, Fixed, Wire Wound (Power Type), General Specification for.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Document Automation and Production Service, Building 4D, (DPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents that are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

#### ELECTRONIC INDUSTRIES ALLIANCE (EIA)

EIA RS-385 - Preferred Values

(Applications for copies should be addressed to Electronic Industries Alliance (EIA), 2500 Wilson Boulevard, Arlington, VA 22201-3834.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-26.

3.2 Interface and physical dimension. The resistor shall meet the interface and physical dimensions specified on figure 1 and as specified herein.

3.3 Power rating and maximum voltage. The power rating and maximum continuous voltage (dc or rms, ac) shall be in accordance with table III. The power rating shall be based on full-load operation at an ambient temperature of 25 °C.

TABLE III. Power rating and maximum voltage.

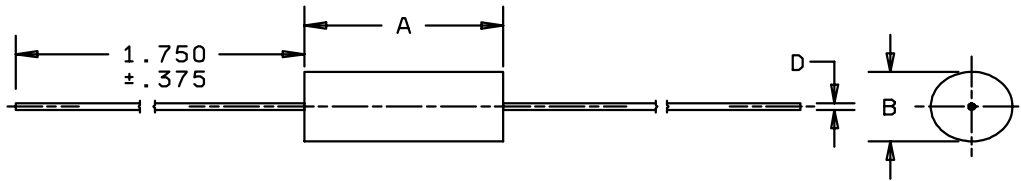
Resistor style	Power rating in watts	Maximum continuous working voltage (volts)
	Characteristic U	
RW80	2	80
RW81	1	33

3.4 Resistance. The minimum and maximum nominal resistance values shall be as specified in table IV.

3.4.1 Standard resistance values. For standard resistance values see RS-385.

TABLE IV. Minimum and maximum nominal resistance values.

Resistor Style	Resistance value (ohms)	
	Minimum	Maximum
RW80	0.10	3,160
RW81	0.10	1,000



	RW80	RW81
A	.406 ±.031	.250 ±.031
B	.094 ±.031	.085 ±.020
D	.020 ±.0015	.020 ±.0015

Inch	mm	Inch	mm
.0015	.040	.250	6.35
.020	.51	.375	9.53
.031	.79	.406	10.31
.085	2.16	1.750	44.45
.094	2.39		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. These styles shall be untapped.
4. The end of the resistor body is the point where the diameter reduces to 0.06 inch.

FIGURE 1. Styles RW80 and RW81.

3.5 Thermal shock. The resistors shall not change in resistance in excess of  $\pm(0.2 \text{ percent} + 0.05 \text{ ohm})$ .

3.6 Short-time overload. The resistors shall not change in resistance in excess of  $\pm(0.2 \text{ percent} + 0.05 \text{ ohm})$ .

3.7 High-temperature exposure. The resistors shall not change in resistance in excess of  $\pm(0.5 \text{ percent} + 0.05 \text{ ohm})$ .

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3.8 Moisture resistance. The resistors shall not change in resistance in excess of  $\pm(0.2$  percent  $+0.05$  ohm).

3.9 Low-temperature storage. The resistors shall not change in resistance in excess of  $\pm(0.2$  percent  $+0.05$  ohm).

3.10 Life. The resistors shall not change in resistance in excess of  $\pm(0.5$  percent  $+0.05$  ohm).

3.11 Solderability. Solderability is applicable to this specification.

3.12 Shock (medium impact). The resistors shall not change in resistance in excess of  $\pm(0.1$  percent  $+0.05$  ohm).

3.13 Vibration (high frequency). The resistors shall not change in resistance in excess of  $\pm(0.1$  percent  $+0.05$  ohm).

3.14 Terminal strength. The resistors shall not change in excess of  $\pm(0.1$  percent  $+0.05$  ohm).

3.15 Dielectric withstanding voltage (barometric pressure, reduced, not applicable). The resistors shall not change in resistance in excess of  $\pm(0.1$  percent  $+0.05$  ohm).

## 4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection shall be in accordance with MIL-PRF-26.

4.2 Short-time overload. The maximum voltages shall be 5 times rated wattage for 5 seconds; however, in no case shall the voltage exceed the values specified in table V.

TABLE V. Maximum voltages for short-time overload.

Resistor style	RW80	RW81
Voltage (volts maximum)	300	150

4.3 Barometric pressure (reduced). The magnitude of test voltage shall be 100 volts rms at 100,000 feet.

4.4 Terminal strength. The applied force shall be 5 pounds.

## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Notes. In addition to the notes specified herein, the notes specified in MIL-PRF-26 are applicable to this specification.

6.2 Acquisition requirements. Acquisition requirements are as specified in MIL-PRF-26.

6.3 Derating. Resistors shall be derated, when necessary, in accordance with figure 2.

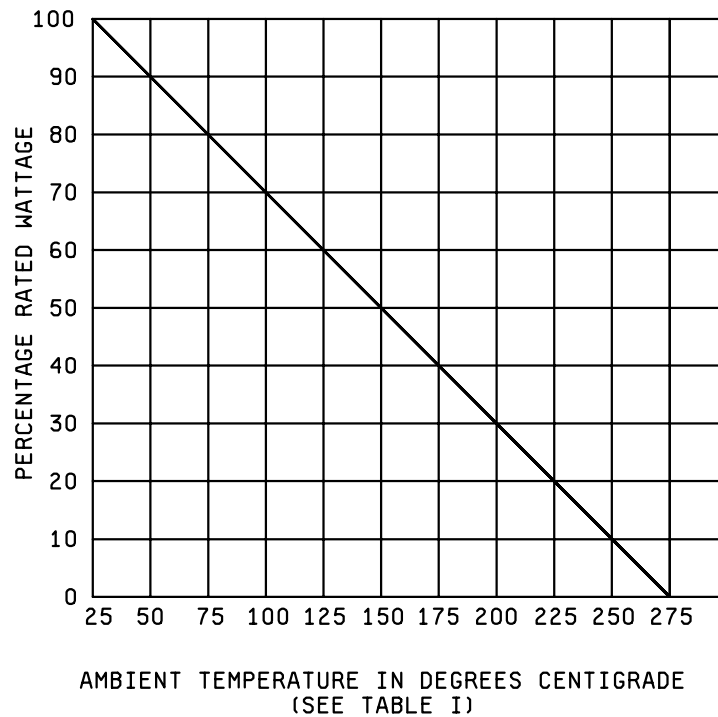


FIGURE 2. Derating curve for high ambient temperatures.

6.4 Substitution data. The resistors specified herein are not for use in new design. They are authorized for use in design contracts effective prior to or on 11 May 1973 and to support existing military equipment. Resistors of MIL-PRF-39007 are preferred for new design and can be used as substitutes for the inactivated resistors as follows:

MIL-PRF-26 (style)	MIL-PRF-39007 associated specification	Substitute style	Resistance tolerance
RW80	MIL-PRF-39007/8	RWR80	B, D, and F
RW81	MIL-PRF-39007/9	RWR81	B, D, and F

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6.5 Changes from previous issue. This document was revised for validation purposes only and has been left as a Military Specification. Changes from previous issue do not affect design, construction, processing, or physical dimensions, but are DoD policy requirements.

Custodians:

Army - CR  
Navy - EC  
Air Force - 11  
DLA - CC

Preparing activity:

DLA - CC

(Project 5905-1605-03)

Review activities:

Army - MI  
Navy - AS  
Air Force - 19